



## **The effect of vitamin and mineral supplementation on esophageal cytology: results from the Linxian Dysplasia Trial**

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**Abstract:** The population of Linxian in China has one of the world's highest rates for esophageal/gastric cardia cancer, as well as documented nutritional deficiencies. To determine whether dietary supplementation with a multi-vitamin multi-mineral preparation could reduce the risk of esophageal cancer and favorably influence precursor lesions, 3,318 individuals age 40-69 with cytologically determined grade 1 or grade 2 esophageal dysplasia were randomly assigned to receive either an active multi-vitamin multi-mineral supplement or a placebo. Pills were distributed at monthly visits and incident cancers or deaths were recorded. At 30 and 72 months subsequent to randomization all living participants without a known incident cancer were asked to undergo repeat cytological examination of their esophagus. Based on these procedures participants were classified as having no dysplasia, dysplasia grade 1, dysplasia grade 2 or near cancer dysplasia. Diagnoses of cancer were based on the cytology findings plus available histologic, radiologic and clinical materials. At the end of the study there was little overall difference in cumulative risk of esophageal cancer between those receiving vitamin/mineral supplementation and those receiving placebo. There was, however, a significant increase in reversion to non-dysplastic cytology among the group receiving the active treatment. The odds of not having any dysplasia at the two post-randomization screens was 1.23 times higher in the active treatment group than in the placebo group. Within each treatment group higher categories of dysplasia were associated with higher rates of cancer.